

*Contest Corner***The 2012 State Tournament of Mathematics Results****Michael Flick and Debbie Kuchey****Introduction**

The OCTM's 2012 State Tournament of Mathematics took place on February 25, 2012. Now is the time to start assembling a team to represent your school in the 2013 competition! The 2013 tournament will take place on February 23, 2013 at 25 test centers located throughout Ohio. You can find registration information on the OCTM State Tournament of Mathematics at <http://www.octmtournament.org>. The overall results from the 2012 State Tournament of Mathematics are summarized in Table 1.

Table 1 2012 Overall State Tournament of Mathematics Results

Rank	School	Score
1	Dublin Jerome High School	147
2	Sycamore High School	140
3	William Mason High School	133
4	Revere High School	131
5	Hawken Upper School	130
6	Columbus Academy High School	123
	St Xavier High School	123
8	Upper Arlington High School	122
9	Brecksville-Broadview Heights	121
10	Perrysburg High School	120
11	Western Reserve Academy School	119
12	Jackson High School	118
13	Athens High School	115
14	Copley High School	112
15	Miami Valley High School	111
16	Dublin Scioto High School	110
17	Lakota West High School	108
	Westlake High School	108
19	Olmsted Falls High School	105
20	Thomas Worthington High School	104

Awards and Recognition

The OCTM also presents awards and recognition to participating schools by their size. In this way, small schools are not put in direct competition with larger schools. OCTM uses a five level system to group schools. Level 1 schools have fewer than 100 students per grade level; Level 2 schools have between 100 and 162 students per grade level; Level 3 schools have between 162 and 234 students per grade level; Level 4 schools have between 234 and 362 students per grade level, and Level 5 schools have more than 362 students per grade level. Table 2 shows the 2012 tournament results by level.

Table 2 2012 Overall State Tournament of Mathematics Results By Level

LEVEL 1		LEVEL 2	LEVEL 3
Level 1: ($n \leq 80$)		Level 2: ($80 < n \leq 149$)	Level 3: ($149 < n \leq 220$)
1. 111 Miami Valley		1. 130 Hawken Upper	1. 115 Athens
2. 100 Seven Hills Upper		2. 123 Columbus	2. 100 Orange
3. 87 Worthington Christian		3. 119 Western Reserve	3. 89 Carroll
4. 74 Granville Christian HS		4. 80 Cincinnati Hills Christian	4. 83 Lexington
5. 73 Russia		5. 77 Coldwater	5. 79 Celina
6. 69 Ayersville		6. 73 Central Catholic	6. 75 Shawnee
69 New Bremen		7. 72 Bluffton	7. 74 Notre Dame-Cathedral Latin
8. 64 Tree Of Life-Northridge Branch		8. 69 Kirtland	8. 66 Memorial
9. 62 Wellington		69 Triway	66 St Vincent-St Mary
10. 59 Delaware Christian		10. 68 Hathaway Brown	10. 64 Benjamin Logan
59 Fort Jennings		11. 66 Cardington-Lincoln	64 Perkins
12. 56 Holgate		12. 65 North Union	64 River Valley
13. 54 Lehman		13. 63 Brookville	13. 62 Archbishop Hoban
14. 50 Columbus Torah		14. 58 Highland	14. 58 Jonathan Alder
15. 47 Ridgedale Jr/Sr		15. 56 Dayton Christian HS	15. 56 Canton South
LEVEL 4		LEVEL 5	
Level 4: ($220 < n \leq 349$)		Level 5: ($349 < n$)	
1. 147 Dublin Jerome		1. 140 Sycamore	
2. 131 Revere		2. 133 William Mason	
3. 120 Perrysburg		3. 123 St Xavier	
4. 112 Copley		4. 122 Upper Arlington	
5. 110 Dublin Scioto		5. 121 Brecksville-Broadview Heights	
6. 108 Westlake		6. 118 Jackson	
7. 105 Olmsted Falls		7. 108 Lakota West	
8. 96 Sylvania Southview		8. 104 Thomas Worthington	
9. 94 Worthington Kilbourne		9. 101 Hudson	
10. 89 Lake		10. 100 Strongsville	
11. 88 Avon Lake		11. 99 Walnut Hills	
88 Norwalk		12. 85 Lincoln	
13. 86 Aurora		85 Mayfield	
14. 81 Ashland		14. 77 Wadsworth	
15. 80 Midpark		15. 70 Marion L Steele	

Example Problems

Seven problems selected from the 40 that appeared on the 2012 tournament are shown in Table 3. Most of the annual State Tournament of Mathematics questions consist of routine problems found in standard high school mathematics textbooks. All of the problems can be solved using algebra, geometry, and arithmetic. Calculators are certainly allowed.



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Table 3 A sampling from the 40 problems that appeared on the 2012 tournament

	<u>ANSWERS</u>
1. Calculate $2^0 + 1^2 - 20^1 \cdot 2$	-38
2. Find the slope of a line <u>perpendicular</u> to the line whose equation is $20x + 12y = 2012$.	$3/5$
3. In a three-way election for OCTM president, Dave received 225 votes, Mark received 50 more votes than Dave, and Kim received 20% of the total votes. What percentage of the total vote did Mark receive?	44%
4. What is the length of the longest pole that will fit inside a right rectangular prism having dimensions 4 feet by 4 feet by 3 feet	$\sqrt{41}$ feet
5. The zeros (roots) of $f(x) = x^3 - 29x^2 + 144x + 720$ are $x = 20$, $x = 12$ and _____.	$x = -3$
6. The bases of an isosceles trapezoid measure 20 cm and 12 cm. If the perimeter of the trapezoid measures 42 cm, find its area.	$48cm^2$
7. A rectangular poster measures 20" x 12". The poster is framed on each of its sides by x inches. If the total area of the poster and frame together is 513 in^2 , determine the value of x .	$7/2$

Errata

In the Spring 2012 Contest Corner, the answer to Question 1 in the 20 minute mathematics contest should be -64.